

ESTUARINE COASTAL AND SHELF SCIENCE

**Volume 18
1984**

ACADEMIC PRESS

London New York

Toronto Sydney

San Francisco



Published by Academic Press Inc. (London) Ltd in association with
the Estuarine and Brackish-water Sciences Association

ISSN 0272-7714

Copyright © 1984, by Academic Press Inc. (London) Ltd.

ALL RIGHTS RESERVED

No part of this volume may be reproduced in any form, by photostat, microfilm, or any other means, without prior permission from the publishers.

Contents of Volume 18

NUMBER 1, JANUARY 1984

EPIFANIO, C. E., VALENTI, C. C. and PEMBROKE, A. E., Dispersal and recruitment of blue crab larvae in Delaware Bay, U.S.A.	1
GORSKY, G., FISHER, N. S. and FOWLER, S. W., Biogenic debris from the pelagic tunicate, <i>Oikopleura dioica</i> , and its role in the vertical transport of a trans-uranium element	13
ARCOS, D. F. and WILSON, R. E., Upwelling and the distribution of chlorophyll <i>a</i> within the Bay of Concepción, Chile	25
WONG, G. T. F. and MOY, C. S., Cesium-137, metals and organic carbon in the sediments of the James River estuary, Virginia	37
THERRIAULT, J. C., DE LADURANTAYE, R. and INGRAM, R. G., Particulate matter exchange across a fjord sill.	51
LANCELOT, C., Extracellular release of small and large molecules by phytoplankton in the southern Bight of the North Sea	65
WARD, T. J. and YOUNG, P. C., Effects of metals and sediment particle size on the species composition of the epifauna of <i>Pinna bicolor</i> near a lead smelter, Spencer Gulf, South Australia	79
BEDFORD, A. P. and MOORE, P. G., Macrofaunal involvement in the sublittoral decay of kelp debris: the detritivore community and species interactions . . .	97
TAKAYANAGI, K. and WONG, G. T. F., Total selenium and selenium (IV) in the James River estuary and Southern Chesapeake Bay	113

NUMBER 2, FEBRUARY 1984

RAYNER, R. F. and DREW, E. A., Nutrient concentrations and primary productivity at the Peros Banhos and Salomon atolls in the Chagos Archipelago . .	121
PECKOL, P. and SEARLES, R. B., Temporal and spatial patterns of growth and survival of invertebrate and algal populations of a North Carolina continental shelf community	133
COSPER, E. and STEPIEN, J. C., Phytoplankton-zooplankton coupling in the outer continental shelf and slope waters of the Mid-Atlantic Bight, June 1979. . .	145

SAVIDGE, G., FOSTER, P. and VOLTOLINA, D., Intense localized productivity in the Irish Sea	157
ROELOFS, A. K., Distributional patterns and variation of valve diameter of <i>Paralia sulcata</i> in surface sediments of Southern British Columbia inlets . . .	165
DE LAFONTAINE, Y., SINCLAIR, M., EL-SABH, M. I., LASSUS, C. and FOURNIER, R., Temporal occurrence of ichthyoplankton in relation to hydrographic and biological variables at a fixed station in the St Lawrence estuary	177
RUPLE, D. L., Occurrence of larval fishes in the surf zone of a northern Gulf of Mexico barrier island	191
BOTTON, M. L., Effects of laughing gull and shorebird predation on the intertidal fauna at Cape May, New Jersey	209
FLINT, R. W. and KAMYKOWSKIE, D., Benthic nutrient regeneration in South Texas coastal waters.	221
LITTLE, C., Echophysiology of <i>Nais elinguis</i> (Oligochaeta) in a brackish-water lagoon	231

NUMBER 3, MARCH 1984

JICKELLS, T. D. and KNAP, A. H., The distribution and geochemistry of some trace metals in the Bermuda coastal environment	245
AL-DABBAS, M. A. M., HUBBARD, F. H. and McMANUS, J., The shell of <i>Mytilus</i> as an indicator of zonal variations of water quality within an estuary	263
WOLANSKI, E. and THOMSON, R. E., Wind-driven circulation on the northern Great Barrier Reef continental shelf in summer.	271
WOLANSKI, E., PICKARD, G. L. and JUPP, D. L. B., River plumes, coral reefs and mixing in the Gulf of Papua and the northern Great Barrier Reef	291
WHITFIELD, A. K., The effects of prolonged aquatic macrophyte senescence on the biology of the dominant fish species in a southern African coastal lake . .	315
PELLENBARG, R. E., On <i>Spartina alterniflora</i> and the trace metal biogeochemistry of a salt marsh.	331
LASIAK, T., Structural aspects of the surf-zone fish assemblage at King's Beach, Algoa Bay, South Africa: short-term fluctuations	347
BANAT, I. M. and NEDWELL, D. B., Inhibition of sulphate reduction in anoxic marine sediment by group VI anions	361

NUMBER 4, APRIL 1984

POWELL, E. N., CUMMINS, H., STANTON, R. J., Jr. and STAFF, G., Estimation of the size of molluscan larval settlement using the death assemblage.	367
TRAMONTANO, J. M. Jr. and BOHLEN, W. F., The nutrient and trace metal geochemistry of a dredge plume	385
HOUDE, E. D. and LOVDAL, J. A., Seasonality of occurrence, foods and food preferences of ichthyoplankton in Biscayne Bay, Florida	403
GALLAGHER, J. L., KIBBY, H. V. and SKIRVIN, K. W., Community respiration of decomposing plants in Oregon estuarine marshes	421
STOFFYN, M., Vertical distribution of trace elements in the surface waters off-shore Nova Scotia	433
EASTMAN, K. W. and CHURCH, T. M., Behaviour of iron, manganese, phosphate and humic acid during mixing in a Delaware salt marsh creek	447
LASIAK, T. A., Structural aspects of the surf-zone fish assemblage at King's Beach, Algoa Bay, South Africa: long-term fluctuations	459

NUMBER 5, MAY 1984

RODEN, C. M., The 1980/1981 phytoplankton cycle in the coastal waters off Connemara, Ireland.	485
BAEYENS, W., MOMMAERTS, J-P., GOEYENS, L., DEHAIRS, F., DEDEURWAERDER, H. and DECADT, G., Dynamic patterns of dissolved nitrogen in the southern bight of the North Sea	499
YOUAKIM, S. and REISWIG, H. M., The distribution and flux of particulate matter in the Bideford River Estuary, Prince Edward Island, Canada	511
BARTHOLDY, J., Transport of suspended matter in a bar-built Danish estuary.	527
BRAND, L. E., The salinity tolerance of forty-six marine phytoplankton isolates	543
BERNAT, M., CAUWET, G., CHASSEFIERE, B., FAGUET, D., GADEL, F., MONACO, A., OUKAD, M. and THOMMERET, Y., Behaviour of metallic and radioactive elements in lagoonal sediments: the example of the Canet-St Nazaire Pond (Mediterranean Coast)	557
LOGAN, A., PAGE, F. H. and THOMAS, M. L. H., Depth zonation of epibenthos on sublittoral hard substrates off Deer Island, Bay of Fundy, Canada	571

NOTES AND DISCUSSIONS

- LANCELOT, C., Metabolic changes in *Phaeocystis poucheti* (Hariot) Lagerheim during the spring bloom in Belgian coastal waters 593

NUMBER 6, JUNE 1984

- ELSINGER, R. J. and MOORE, W. S., ^{226}Ra and ^{228}Ra in the mixing zones of the Pee Dee River-Winyah Bay, Yangtze River and Delaware Bay estuaries. . . . 601
- MATSUNAGA, K., IGARASHI, K., FUKASE, S. and TSUBOTA, H., Behaviour of organically-bound iron in seawater of estuaries 615
- KNOX, S., LANGSTON, W. J., WHITFIELD, M., TURNER, D. R. and LIDDICOAT, M. I., Statistical analysis of estuarine profiles: II Application to arsenic in the Tamar estuary (S.W. England) 623
- MORGAN, M. A. and WOODHEAD, P. M. J., The life history and sexual biology of *Pseudunicola obliquua* (Crustaceae: amphipoda) in the New York Bight . . . 639
- EVANS, S., Energy budgets and predation impact of dominant epibenthic carnivores on a shallow soft bottom community at the Swedish west coast . . 651
- WILSON, W. H., Jr, An experimental analysis of spatial competition in a dense infaunal community: the importance of relative effects 673
- GARBER, J. H., Laboratory study of nitrogen and phosphorus remineralization during the decomposition of coastal plankton and seston 685
- PRAHL, F. G. and CARPENTER, R., Hydrocarbons in Washington coastal sediments 703
- DAME, R. F. and STILWELL, D., Environmental factors influencing macrodetritus flux in North Inlet estuary. 721
- BOOK REVIEWS 727
- NOTICE 734

Index to Volume 18

Note: The subject index is based upon the keywords allocated to each paper. The keywords are rotated in order so that each one appears once as the first index term. The complete list of permitted keywords is published in *Estuarine and Coastal Marine Science* 5(2), i-xl.

- Abundance; diversity; South Africa coast; fisheries; community; surf-zone; variation, 347
- Abundance; seasonal variations; fish; community; surf zone, 459
- AL-DABBAS, M. A. M., HUBBARD, F. H. and MCMANUS, J., The shell of *Mytilus* as an indicator of zonal variations of water quality within an estuary, 263
- Americium; Mediterranean Sea; tunicates; biogeochemistry; fecal pellets; sinking, 13
- Ammonia; manganese; estuaries; mixing processes; statistical analysis; interstitial water; arsenic; iron, 623
- Amphipoda; life cycle; reproduction; fecundity; recruitment; survival; New York Bight, 639
- Anions; inhibitors; sulfates; anoxic conditions, 361
- Anoxic conditions; anions; inhibitors; sulfates, 361
- Aquatic plants; teleosts; South Africa; estuarine fauna; food sources, 315
- ARCOS, D. F. and WILSON, R. E., Upwelling and the distribution of chlorophyll *a* within the Bay of Concepción, Chile, 25
- Arsenic; iron; ammonia; manganese; estuaries; mixing processes; statistical analysis; interstitial water, 623
- Atlantic Ocean northwest; Nova Scotia; continental shelf, trace elements; vertical distributions; water column, 433
- Atolls; Chagos Islands; nutrients; productivity; oxygen distribution, 121
- Australia coast; cadmium; copper; lead; zinc; marine; bryozoa; sponge fisheries; mollusca, 79
- Bacteria; Belgian coast; estuary; English Channel; phytoplankton; excretion; polymers, 65
- BAEYENS, W., MOMMAERTS, J.-P., GOEYENS, L., DEHAIRS, F., DEDEURWAERDER, H. & DECADT, G., Dynamic patterns of dissolved nitrogen in the Southern Bight of the North Sea, 499
- BANAT, I. M. and NEDWELL, D. B., Inhibition of sulphate reduction in anoxic marine sediment by group VI anions, 361
- BARTHOLDY, J., Transport of suspended matter in a bar-built Danish estuary, 527
- Bay of Fundy, Canada; sublittoral zones; benthos; depth zones, 571
- Bays; upwelling; phytoplankton; spatial distribution; circulation; flushing; Concepción Bay, Chile, 25
- BEDFORD, A. P. and MOORE, P. G., Macrofaunal involvement in the sublittoral decay of kelp debris: the detritivore community and species interactions, 97
- Belgian coast; estuary; English Channel; phytoplankton; excretion; polymers; bacteria, 65
- Belgian coastal waters; spring bloom; Haptophyceae; proteins; polysaccharides; lipids; excreted products; inorganic nitrogen, 593
- Benthic; intertidal sand habitat; birds; horseshoe crabs; New Jersey; predation, 209
- Benthic; nutrients; sediments; coastal currents; Texas; Gulf of Mexico; benthic fauna, 221
- Benthic fauna, benthic; nutrients; sediments; coastal currents; Texas; Gulf of Mexico, 221
- Benthos; depth zones; Bay of Fundy, Canada; sublittoral zones, 571
- Bermuda islands; metals; water analysis (chemical); lagoons, sediments, 245
- BERNAT, M., CAUWET, G., CHASSEFIERE, B., FAGUET, D., GADEL, F., MONACO, A., OUAHAD, M. & THOMMERET, Y., Behaviour of metallic and radioactive elements in lagoonal sediments: the example of the Canet-St Nazaire Pond (Mediterranean Coast), 557
- Biogeochemistry; fecal pellets; sinking; americium; Mediterranean Sea; tunicates, 13
- Biogeochemistry; surface layers; redox; Delaware coast; trace elements; *Spartina*; salt marshes, 331
- Biological consumption; biological production; dissolved nitrogen; North Sea; nitrogen supply, 499

- Biological production; dissolved nitrogen; North Sea; nitrogen supply; biological consumption, 499
- Birds; horseshoe crabs; New Jersey; predation; benthic; intertidal sand habitat, 209
- Biscayne Bay; fish larvae; foods; feeding; seasonal cycles, 403
- Bivalves; Puget Sound; community; infauna; competition; Polychaeta; Crustacea, 673
- BOHLEN, W. F., *see* TRAMONTANO, J. M., Jr, 385
- BOTTON, M. L., Effects of laughing gull and shorebird predation on the intertidal fauna at Cape May, New Jersey, 209
- Brackish waters; seasonal cycles; England coast; Oligochaeta; lagoons, 231
- BRAND, L. E., The salinity tolerance of forty-six marine phytoplankton isolates, 543
- British Columbia; diatoms; estuaries; sediments, 165
- Brown shrimp; juvenile plaice; sand goby; Gullmar Fjord; sand beach; energy flow; predation, 651
- Bryozoa; sponge fisheries; mollusca; Australia coast; cadmium; copper; lead; zinc; marine, 79
- Cadmium; copper; lead; zinc; marine; bryozoa; sponge fisheries; mollusca; Australia coast, 79
- CARPENTER, R., *see* PRAHL, F. G., 703
- CAUWET, G. (*see* BERNAT, M.), 557
- Chagos Islands; nutrients; productivity; oxygen distribution; atolls, 121
- CHASSEFIERE, B., *see* BERNAT, M., 557
- Chesapeake Bay; selenium; speciation; estuaries; mixing, 113
- Chlorophyll; coastal waters; Ireland west coast; phytoplankton; species composition; seasonal cycles; nutrients, 485
- Chlorophylls; estuarine circulation; fjords; St Lawrence Estuary; particulate matter, 51
- CHURCH, T. M., *see* EASTMAN, K. W., 447
- Circulation; flushing; Concepción Bay, Chile; bays; upwelling; phytoplankton; spatial distribution, 25
- Clay; organic matter; lagoons; Mediterranean coast; metals; radionuclides, 557
- Coastal currents; Texas; Gulf of Mexico; benthic fauna; benthic; nutrients; sediments, 221
- Coastal waters; Ireland west coast; phytoplankton; species composition; seasonal cycles; nutrients; chlorophyll, 485
- Community; infauna; competition; Polychaeta; Crustacea; bivalves; Puget Sound, 673
- Community; surf zone; abundance; seasonal variations; fish, 459
- Community; surf-zone; variation; abundance; diversity; South Africa coast; fisheries, 347
- Competition, Polychaeta; Crustacea; bivalves; Puget Sound; community; infauna, 673
- Concepción Bay, Chile; bays; upwelling; phytoplankton; spatial distribution; circulation; flushing, 25
- Continental margins; New York Bight; primary productivity; zooplankton; grazing, 145
- Continental shelf, trace elements; vertical distributions; water column; Atlantic ocean northwest; Nova Scotia, 433
- Continental shelves; seaweeds; Invertebrata; turbulence; North Carolina; marine ecology; spatial distribution; temporal variations, 133
- Continental shelves, tides; wakes; Great Barrier Reef, Coral Sea; wind stress; friction coefficients, 271
- Copper; lead; zinc; marine; bryozoa; sponge fisheries; mollusca; Australia coast; cadmium, 79
- Coral Sea, river plumes; mixing processes; wakes; Great Barrier Reef; Papua, 291
- Coral sea, wind stress; friction coefficients; continental shelves; tides; wakes; Great Barrier Reef, 271
- COSPER, E. and STEPIEN, J. C., Phytoplankton-zooplankton coupling in the outer continental shelf and slope waters of the Mid-Atlantic Bight, June 1979, 145
- Crabs; larval stages; dispersal phenomena; recruitment; Delaware Bay, 1
- Crustacea; bivalves; Puget Sound; community; infauna; competition; Polychaeta, 673
- CUMMINS, H., *see* POWELL, E. N., 367
- DAME, R. F. and STILWELL, D., Environmental factors influencing macrodetritus flux in North Inlet Estuary, 721
- DECADT, G., *see* BAEYENS, W., 499
- Decomposition; plankton; seston; estuaries; mineralization; regeneration; nutrients, 685
- Decomposition; respiration; Oregon Coast; marshes, 421

- DEDEURWAERDER, H., *see* BAEYENS, W., 499
- DE LADURANTAYE, R., *see* THERRIault, J. C., 51
- DEHAIRS, F., *see* BAEYENS, W., 499
- DA LAFONTAINE, Y., SINCLAIR, M., EL-SABH, M. I., LASSUS, C. and FOURNIER, R., Temporal occurrence of ichthyoplankton in relation to hydrographic and biological variables at a fixed station in the St Lawrence Estuary, 177
- Delaware, salt marshes; flocculation; iron; manganese; phosphates; humic acid, 447
- Delaware Bay, crabs; larval stages; dispersal phenomena; recruitment, 1
- Delaware Bay, radioactive isotopes; desorption; radium, 601
- Delaware coast; trace elements; *Spartina*; salt marshes; biogeochemistry; surface layers; redox, 331
- Denmark coast, sediment transport; suspended matter; tidal estuaries; models; water movements, 527
- Depth zones; Bay of Fundy, Canada; sublittoral zones; benthos, 571
- Desorption; radium; Delaware Bay; radioactive isotopes, 601
- Detritivores; sublittoral zones; Scotland coast; macrofauna, kelp, 97
- Detritus; estuaries; salt marshes, 721
- Diatoms; estuaries; sediments; British Columbia, 165
- Dispersal phenomena; recruitment; Delaware Bay; crabs; larval stages, 1
- Dissolved nitrogen; North Sea; nitrogen supply; biological consumption; biological production, 499
- Distribution; surf zone; Gulf of Mexico; Mississippi coast; fish larvae, 191
- Distributions; Washington coast; hydrocarbons; organic matter; sediment cores, 703
- Diversity; South Africa coast; fisheries; community; surf-zone; variation; abundance, 347
- Dredging; nutrients; trace elements; geochemistry; mixing; estuarine sedimentation; suspended sediments; Long Island, 385
- DREW, E. A., *see* RAYNER, R. F., 121
- EASTMAN, K. W. and CHURCH, T. M., Behaviour of iron, manganese, phosphate and humic acid during mixing in a Delaware salt marsh creek, 447
- EL-SABH, M. I., *see* DE LAFONTAINE, Y., 177
- ELSINGER, R. J. and MOORE, W. S., ^{226}Ra and ^{228}Ra in the mixing zones of the Pee Dee River-Winyah Bay, Yangtze River and Delaware Bay estuaries, 601
- Energy flow; predation; brown shrimp; juvenile plaice; sand goby; Gullmar Fjord; sand beach, 651
- England coast; Oligochaeta; lagoons; brackish waters; seasonal cycles, 231
- English Channel; phytoplankton; excretion; polymers; bacteria; Belgian coast; estuary, 65
- EPIFANIO, C. E., VALENTI, C. C. and PEMBROKE, A. E., Dispersal and recruitment of blue crab larvae in Delaware Bay, U.S.A., 1
- Estuaries; mineralization; regeneration; nutrients; decomposition; plankton; seston, 685
- Estuaries; mixing; Chesapeake Bay; selenium; speciation, 113
- Estuaries; mixing processes; statistical analysis; interstitial water; arsenic; iron; ammonia; manganese, 623
- Estuaries; salt marshes; detritus, 721
- Estuaries; sediments; British Columbia; diatoms, 165
- Estuarine circulation; fjords; St Lawrence Estuary; particulate matter; chlorophylls, 51
- Estuarine fauna, food sources; aquatic plants; teleosts; South Africa, 315
- Estuarine sedimentation; suspended sediments; Long Island; dredging; nutrients; trace elements; geochemistry; mixing, 385
- Estuarine sedimentation; Virginia coast; metals; radioactive tracers; radioactive dating, 37
- Estuary; English Channel; phytoplankton; excretion; polymers; bacteria; Belgian coast, 65
- EVANS, S., Energy budgets and predation impact of dominant epibenthic carnivores on a shallow soft bottom community at the Swedish west coast, 651
- Excreted products; inorganic nitrogen; Belgian coastal waters; spring bloom; Haptophyceae; proteins; polysaccharides; lipids, 593
- Excretion; polymers; bacteria; Belgian coast; estuary; English Channel; phytoplankton, 65
- FAGUET, D., *see* BERNAT, M., 557
- Fecal pellets; sinking; americium; Mediterranean Sea; tunicates; biogeochemistry, 13

- Fecundity; recruitment; survival; New York Bight; Amphipoda; life cycle; reproduction, 639
- Feeding; seasonal cycles; Biscayne Bay; fish larvae; foods, 403
- Fish; community; surf zone; abundance; seasonal variations, 459
- Fish larvae; distribution; surf zone; Gulf of Mexico; Mississippi coast, 191
- Fish larvae; foods; feeding; seasonal cycles; Biscayne Bay, 403
- FISHER, N. S., *see* GORSKY, G., 13
- Fisheries; community; surf-zone; variation; abundance; diversity; South Africa coast, 347
- Fjords; St Lawrence Estuary; particulate matter; chlorophylls; estuarine circulation, 51
- FLINT, R. W. and KAMYKOWSKI, D., Benthic nutrient regeneration in south Texas coastal waters, 221
- Flocculation; iron; manganese; phosphates; humic acids; Delaware; salt marshes, 447
- Flushing; Concepción Bay, Chile; bays; upwelling; phytoplankton; spatial distribution; circulation, 25
- Food sources; aquatic plants; teleosts; South Africa; estuarine fauna, 315
- Foods; feeding; seasonal cycles; Biscayne Bay; fish larvae, 403
- FOSTER, P., *see* SAVIDGE, G., 157
- FOURNIER, R., *see* DE LAFONTAINE, Y., 177
- FOWLER, S. W., *see* GORSKY, G., 13
- Friction coefficients; continental shelves; tides; wakes; Great Barrier Reef; Coral Sea; wind stress, 271
- Frontal zones; Irish Sea; phytoplankton; productivity, 157
- FUKASE, S., *see* MATSUNAGA, K., 615
- GADEL, F., *see* BERNAT, M., 557
- GALLAGHER, J. L., KIBBY, H. V. and SKIRVIN, K. W., Community respiration of decomposing plants in Oregon estuarine marshes, 421
- GARBER, J. H., Laboratory study of nitrogen and phosphorus remineralization during the decomposition of coastal plankton and seston, 685
- Geochemistry; mixing; estuarine sedimentation; suspended sediments; Long Island; dredging; nutrients; trace elements, 385
- Glaciation; phytoplankton; salinity; reproduction, 543
- GOEYENS, L., *see* BAEYENS, W., 499
- GORSKY, G., FISHER, N. S. and FOWLER, S. W., Biogenic debris from the pelagic tunicate, *Oikopleura dioica*, and its role in the vertical transport of a transuranium element, 13
- Grazing; continental margins; New York Bight; primary productivity; zooplankton, 145
- Great Barrier Reef; Coral sea; wind stress; friction coefficients; continental shelves; tides; wakes, 271
- Great Barrier Reef; Papua; Coral Sea; river plumes; mixing processes; wakes, 291
- Gulf of Mexico; benthic fauna; benthic; nutrients; sediments; coastal currents; Texas, 221
- Gulf of Mexico; Mississippi coast; fish larvae; distribution; surf zone, 191
- Gullmar Fjord; sand beach; energy flow; predation; brown shrimp; juvenile plaice; sand goby, 651
- Haptophyceae; proteins; polysaccharides; lipids; excreted products; inorganic nitrogen; Belgian coastal waters; spring bloom, 593
- Horseshoe crabs; New Jersey; predation; benthic; intertidal sand habitat; birds, 209
- HOUE, E. D. and LOVDAL, J. A., Seasonality of occurrence, foods and food preferences of ichthyoplankton in Biscayne Bay, Florida, 403
- HUBBARD, F. H., *see* AL-DABBAS, M. A. M., 263
- Humic acids; Delaware; salt marshes; flocculation; iron; manganese; phosphates, 447
- Hydrocarbons; organic matter; sediment cores; distributions; Washington coast, 703
- Ichthyoplankton; temporal variations; tides; nearshore zone; production; St Lawrence Estuary 177
- IGARASHI, K., *see* MATSUNAGA, K., 615
- Infauna; competition; Polychaeta; Crustacea; bivalves; Puget Sound; community, 673
- INGRAM, R. G., *see* THERRIAULT, J. C., 51
- Inhibitors; sulfates; anoxic conditions; anions, 361
- Inorganic nitrogen; Belgian coastal waters; spring bloom; Haptophyceae; proteins; polysaccharides; lipids; excreted products, 593

- Interstitial water; arsenic; iron; ammonia; manganese; estuaries; mixing processes; statistical analysis, 623
- Intertidal sand habitat; birds; horseshoe crabs; New Jersey; predation; benthic, 209
- Invertebrata; turbulence; North Carolina; marine ecology; spatial distribution; temporal variations; continental shelves; seaweeds, 133
- Ireland west coast; phytoplankton; species composition; seasonal cycles; nutrients; chlorophyll; coastal waters, 485
- Irish Sea; phytoplankton; productivity; frontal zones, 157
- Iron, ammonia; manganese; estuaries; mixing processes; statistical analysis; interstitial water; arsenic, 623
- Iron; manganese; phosphates; humic acids; Delaware; salt marshes; flocculation, 447
- Japan; organic metals; nutrients phytoplankton; red tide, 615
- JICKELLS, T. D. and KNAP, A. H., The distribution and geochemistry of some trace metals in the Bermuda coastal environment, 245
- JUPP, D. L. B., *see* WOLANSKI, E., 291
- Juvenile plaice; sand goby; Gullmar Fjord; sand beach; energy flow; predation; brown shrimp, 651
- KAMYKOWSKI, D., *see* FLINT, R. W., 221
- Kelp; detritivores; sublittoral zones; Scotland coast; macrofauna, 97
- KIBBY, H. V., *see* GALLAGHER, J. L., 421
- KNAP, A. H., *see* JICKELLS, T. D., 245
- KNOX, S., LANGSTON, W. J., WHITFIELD, M., TURNER, D. R. and LIDDICOAT, M. I., Statistical analysis of estuarine profiles: II. Application to arsenic in the Tamar Estuary (S.W. England), 623
- Lagoons; Mediterranean coast; metals; radionuclides; clay; organic matter, 557
- Lagoons, brackish waters; seasonal cycles; England coast; Oligochaeta, 231
- Lagoons; sediments; Bermuda islands; metals; water analysis (chemical), 245
- LANCELOT, C., Extracellular release of small and large molecules by phytoplankton in the southern bight of the North Sea, 65
- LANCELOT, C., Metabolic changes in *Phaeocystis poucheti* (Hariot) Lagerheim during the spring bloom in Belgian coastal waters, 593
- LANGSTON, W. J., *see* KNOX, S., 623
- Larval stages; dispersal phenomena; recruitment; Delaware Bay; crabs, 1
- LASIAK, T. A., Structural aspects of the surf-zone fish assemblage at King's Beach, Algoa Bay, South Africa: short-term fluctuations, 347
- LASIAK, T. A., Structural aspects of the surf-zone fish assemblage at King's Beach, Algoa Bay, South Africa: long-term fluctuations, 459
- LASSUS, C., *see* DE LAFONTAINE, Y., 177
- Lead; zinc; marine; bryozoa; sponge fisheries; mollusca; Australia coast; cadmium; copper, 79
- LIDDICOAT, M. I., *see* KNOX, S., 623
- Life cycle; reproduction; fecundity; recruitment; survival; New York Bight; Amphipoda, 639
- Lipids; excreted products; inorganic nitrogen; Belgian coastal waters; spring bloom; Haptophyceae; proteins; polysaccharides, 593
- LITTLE, C., Ecophysiology of *Nais elinguis* (Oligochaeta) in a brackish-water lagoon, 231
- LOGAN, A., PAGE, F. H. and THOMAS, M. L. H., Depth zonation of epibenthos on sublittoral hard substrates off Deer Island, Bay of Fundy, Canada, 571
- Long Island; dredging; nutrients; trace elements; geochemistry; mixing; estuarine sedimentation; suspended sediments, 385
- LOVDAL, J. A., *see* HOUDE, E. D., 403
- MCMANUS, J., *see* AL-DABBAS, M. A. M., 263
- Macrofaunal; kelp; detritivores; sublittoral zones; Scotland coast, 97
- Manganese; estuaries; mixing processes; statistical analysis; interstitial water; arsenic; iron; ammonia, 623
- Manganese; phosphates; humic acids; Delaware; salt marshes; flocculation; iron, 447
- Marine; bryozoa; sponge fisheries; mollusca; Australia coast; cadmium; copper; lead; zinc, 79
- Marine ecology; spatial distribution; temporal variations; continental shelves; seaweeds; Invertebrata; turbulence; North Carolina, 133

- Marshes; decomposition; respiration; Oregon Coast, 421
- MATSUNAGA, K., IGARASHI, K., FUKASE, S. and TSUBOTA, H., Behaviour of organically-bound iron in seawater of estuaries, 615
- Mediterranean coast; metals; radionuclides; clay; organic matter; lagoons, 557
- Mediterranean Sea, tunicates; biogeochemistry; fecal pellets; sinking; americium, 13
- Metals; radioactive tracers; radioactive dating; estuarine sedimentation; Virginia coast, 37
- Metals; radionuclides; clay; organic matter; lagoons; Mediterranean coast, 557
- Metals; water analysis (chemical); lagoons; sediments; Bermuda islands, 245
- Mineralization; regeneration; nutrients; decomposition; plankton; seston; estuaries, 685
- Mississippi coast; fish larvae; distribution; surf zone; Gulf of Mexico, 191
- Mixing; Chesapeake Bay; selenium; speciation; estuaries, 113
- Mixing; estuarine sedimentation; suspended sediments; Long Island; dredging; nutrients; trace elements; geochemistry, 385
- Mixing processes; statistical analysis; interstitial water; arsenic; iron; ammonia; manganese; estuaries, 623
- Mixing processes; wakes; Great Barrier Reef; Papua; Coral Sea; river plumes, 291
- Models; water movements; Denmark coast; sediments transport; suspended matter; tidal estuaries, 527
- Mollusca; Australia coast; cadmium; copper; lead; zinc; marine; bryozoa; sponge fisheries, 79
- Mollusca; Texas; settlement; recruitment; population dynamics, 367
- MOMMAERTS, J.-P., *see* BAEYENS, W., 499
- MONACO, A., *see* BERNAT, M., 557
- MOORE, P. G., *see* BEDFORD, A. P., 97
- MOORE, W. S., *see* ELSINGER, R. J., 601
- MORGAN, M. A. and WOODHEAD, P. M. J., The life history and sexual biology of *Pseudunciola obliqua* (Crustacea: Amphipoda) in the New York Bight, 639
- MOY, C. S., *see* WONG, G. T. F., 37
- Mytilus*; shells; pollution; Scotland, 263
- Nearshore zone; production; St Lawrence Estuary; ichthyoplankton; temporal variations; tides, 177
- NEDWELL, D. B., *see* BANAT, I. M., 361
- New Jersey; predation; benthic; intertidal sand habitat; birds; horseshoe crabs, 209
- New York Bight; Amphipoda; life cycle; reproduction; fecundity; recruitment; survival, 639
- New York Bight; primary productivity; zooplankton; grazing; continental margins, 145
- Nitrogen supply; biological consumption; biological production; dissolved nitrogen; North Sea, 499
- North Carolina; marine ecology; spatial distribution; temporal variations; continental shelves; seaweeds; Invertebrata; turbulence, 133
- North Sea, nitrogen supply; biological consumption; biological production; dissolved nitrogen, 499
- Nova Scotia; continental shelf; trace elements; vertical distributions; water column; Atlantic Ocean northwest, 433
- Nutrients; chlorophyll; coastal waters; Ireland west coast; phytoplankton; species composition; seasonal cycles, 485
- Nutrients; decomposition; plankton; seston; estuaries; mineralization; regeneration, 685
- Nutrients; phytoplankton; red tide; Japan; organic metals, 615
- Nutrients; productivity; oxygen distribution; atolls, Chagos Islands, 121
- Nutrients; sediments; coastal currents; Texas; Gulf of Mexico; benthic fauna; benthic, 221
- Nutrients; trace elements; geochemistry; mixing; estuarine sedimentation; suspended sediments; Long Island; dredging, 385
- Oligochaeta; lagoons; brackish waters; seasonal cycles; England coast, 231
- Oregon Coast; marshes; decomposition; respiration, 421
- Organic matter; lagoons; Mediterranean coast; metals; radionuclides; clay, 557
- Organic matter; pigments; water; sediments; sediment traps; Prince Edward Island coast; particulate matter, 511
- Organic matter; sediment cores; distributions; Washington coast; hydrocarbons, 703
- Organic metals; nutrients; phytoplankton; red tide; Japan, 615

- OUAKAD, M., *see* BERNAT, M., 557
- Oxygen distribution; atolls; Chagos Islands; nutrients; productivity, 121
- PAGE, F. H., *see* LOGAN, A., 571
- Papua; Coral Sea; river plumes; mixing processes; wakes; Great Barrier Reef, 291
- Particulate matter; chlorophylls; estuarine circulation; fjords; St Lawrence Estuary, 51
- Particulate matter; organic matter; pigments; water; sediments; sediment traps; Prince Edward Island coast, 511
- PECKOL, P. and SEARLES, R. B., Temporal and spatial patterns of growth and survival of invertebrate and algal populations of a North Carolina continental shelf community, 133
- PELLANBARG, R. E., On *Spartina alterniflora* litter and the trace metal biogeochemistry of a salt marsh, 331
- PEMBROKE, A. E., *see* EPIFANIO, C. E., 1
- Phosphates; humic acids; Delaware; salt marshes; flocculation; iron; manganese, 447
- Phytoplankton; excretion; polymers; bacteria; Belgian coast; estuary; English Channel, 65
- Phytoplankton; productivity; frontal zones; Irish Sea, 157
- Phytoplankton; red tide; Japan; organic metals; nutrients, 615
- Phytoplankton; salinity; reproduction; glaciation, 543
- Phytoplankton; spatial distribution; circulation; flushing; Concepción Bay, Chile; bays; upwelling, 25
- Phytoplankton; species composition; seasonal cycles; nutrients; chlorophyll; coastal waters; Ireland west coast, 485
- PICKARD, G. L., *see* WOLANSKI, E., 291
- Pigments; water; sediments; sediment traps; Prince Edward Island coast; particulate matter; organic matter, 511
- Plankton; seston; estuaries; mineralization; regeneration; nutrients; decomposition, 685
- Pollution; Scotland; *Mytilus*; shells, 263
- Polychaeta; Crustacea; bivalves; Puget Sound; community; infauna; competition, 673
- Polymers; bacteria; Belgian coast; estuary; English Channel; phytoplankton; excretion, 65
- Polysaccharides; lipids; excreted products; inorganic nitrogen; Belgian coastal waters; spring bloom; Haptophyceae; proteins, 593
- Population dynamics; mollusca; Texas; settlement; recruitment, 367
- POWELL, E. N., CUMMINS, H., STANTON, R. J., Jr and STAFF, G., Estimation of the size of molluscan larval settlement using the death assemblage, 367
- PRAHL, F. G. and CARPENTER, R., Hydrocarbons in Washington coastal sediments, 703
- Predation; benthic; intertidal sand habitat; birds; horseshoe crabs; New Jersey, 209
- Predation; brown shrimp; juvenile plaice; sand goby; Gullmar Fjord; sand beach; energy flow, 651
- Primary productivity; zooplankton; grazing; continental margins; New York Bight, 145
- Prince Edward Island coast; particulate matter; organic matter; pigments; water; sediments; sediment traps, 511
- Production; St Lawrence Estuary; ichthyoplankton; temporal variations; tides; nearshore zone, 177
- Productivity; frontal zones; Irish Sea; phytoplankton, 157
- Productivity; oxygen distribution; atolls; Chagos Islands; nutrients, 121
- Proteins; polysaccharides; lipids; excreted products; inorganic nitrogen; Belgian coastal waters; spring bloom; Haptophyceae, 593
- Puget Sound; community; infauna; competition; Polychaeta; Crustacea; bivalves, 673
- Radioactive dating; estuarine sedimentation; Virginia coast; metals; radioactive tracers, 37
- Radioactive isotopes; desorption; radium; Delaware Bay, 601
- Radioactive tracers; radioactive dating; estuarine sedimentation; Virginia coast; metals, 37
- Radionuclides; clay; organic matter; lagoons; Mediterranean coast; metals, 557
- Radium, Delaware Bay; radioactive isotopes; desorption, 601
- RAYNER, R. F. and DREW, E. A., Nutrient concentrations and primary productivity at the Peros Banhos and Salomon Atolls in the Chagos Archipelago, 121
- Recruitment; Delaware Bay; crabs; larval stages; dispersal phenomena, 1
- Recruitment; population dynamics; mollusca; Texas; settlement, 367
- Recruitment; survival; New York Bight; Amphipoda; life cycle; reproduction; fecundity, 639

- Red tide; Japan; organic metals; nutrients; phytoplankton, 615
- Redox; Delaware coast; trace elements; *Spartina*; salt marshes; biogeochemistry; surface layers, 331
- Regeneration; nutrients; decomposition; plankton; seston; estuaries; mineralization, 685
- REISWIG, H. M., *see* YOUAKIM, S., 511
- Reproduction; fecundity; recruitment; survival; New York Bight; Amphipoda; life cycle, 639
- Reproduction; glaciation; phytoplankton; salinity, 543
- Respiration; Oregon Coast; marshes; decomposition, 421
- River plumes; mixing processes; wakes; Great Barrier Reef; Papua; Coral Sea, 291
- RODEN, C. M., The 1980/1981 phytoplankton cycle in the coastal waters off Connernara, Ireland, 485
- ROELOFS, A. K., Distributional patterns and variation of valve diameter of *Paralia sulcata* in surface sediments of southern British Columbia inlets, 165
- RUPLE, D. L., Occurrence of larval fishes in the surf zone of a northern gulf of Mexico Barrier Island, 191
- St Lawrence Estuary; ichthyoplankton; temporal variations; tides; nearshore zone; production, 177
- St Lawrence Estuary; particulate matter; chlorophylls; estuarine circulation; fjords, 51
- Salinity; reproduction; glaciation; phytoplankton, 543
- Salt marshes; biogeochemistry; surface layers; redox; Delaware coast; trace elements; *Spartina*, 331
- Salt marshes; detritus; estuaries, 721
- Salt marshes; flocculation; iron; manganese; phosphates; humic acids; Delaware, 447
- Sand beach; energy flow; predation; brown shrimp; juvenile plaice; sand goby; Gullmar Fjord, 651
- Sand goby; Gullmar Fjord; sand beach; energy flow; predation; brown shrimp; juvenile plaice, 651
- SAVIDGE, G., FOSTER, P. and VOLTOLINA, D., Intense localized productivity in the Irish Sea, 157
- Scotland; *Mytilus*; shells; pollution, 263
- Scotland coast; macrofauna; kelp; detritivores; sublittoral zones, 97
- SEARLES, R. B., *see* PECKOL, P., 133
- Seasonal cycles; Biscayne Bay; fish larvae; foods; feeding, 403
- Seasonal cycles; England coast; Oligochaeta; lagoons; brackish waters, 231
- Seasonal cycles; nutrients; chlorophyll; coastal waters; Ireland west coast; phytoplankton; species composition, 485
- Seasonal variations; fish; community; surf zone; abundance, 459
- Seaweeds; Invertebrata; turbulence; North Carolina; marine ecology; spatial distribution; temporal variations; continental shelves, 133
- Sediment cores; distributions; Washington coast; hydrocarbons; organic matter, 703
- Sediment transport; suspended matter; tidal estuaries; models; water movements; Denmark coast, 527
- Sediment traps; Prince Edward Island coast; particulate matter; organic matter; pigments; water; sediments, 511
- Sediments; Bermuda islands; metals; water analysis (chemical); lagoons, 245
- Sediments; British Columbia; diatoms; estuaries, 165
- Sediments; coastal currents; Texas; Gulf of Mexico; benthic fauna; benthic; nutrients, 221
- Sediments; sediment traps; Prince Edward Island coast; particulate matter; organic matter; pigments; water, 511
- Selenium; speciation; estuaries; mixing; Chesapeake Bay, 113
- Seston; estuaries; mineralization; regeneration; nutrients; decomposition; plankton, 685
- Settlement; recruitment; population dynamics; mollusca; Texas, 367
- Shells; pollution; Scotland; *Mytilus*, 263
- SINCLAIR, M., *see* DE LAFONTAINE, Y., 177
- Sinking; americium; Mediterranean Sea; tunicates; biogeochemistry; fecal pellets, 13
- SKIRVIN, K. W., *see* GALLAGHER, J. L., 421
- South Africa; estuarine fauna; food sources; aquatic plants; teleosts, 315
- South Africa coast; fisheries; community; surf-zone; variation; abundance; diversity, 347

- Spartina*; Salt marshes; biogeochemistry; surface layers; redox; Delaware coast; trace elements, 331
- Spatial distribution; circulation; flushing; Concepción Bay, Chile; bays; upwelling; phytoplankton, 25
- Spatial distribution; temporal variations; continental shelves; seaweeds; Invertebrata; turbulence; North Carolina; marine ecology, 133
- Speciation; estuaries; mixing; Chesapeake Bay; selenium, 113
- Species composition; seasonal cycles; nutrients; chlorophyll; coastal waters; Ireland west coast; phytoplankton, 485
- Sponge fisheries; mollusca; Australia coast; cadmium; copper; lead; zinc; marine; bryozoa, 79
- Spring bloom; Haptophyceae; proteins; polysaccharides; lipids; excreted products; inorganic nitrogen; Belgian coastal waters, 593
- STAFF, G., *see* POWELL, E. N., 367
- STANTON, R. J., Jr, *see* POWELL, E. N., 367
- Statistical analysis; interstitial water; arsenic; iron; ammonia; manganese; estuaries; mixing processes, 623
- STAPIEN, J. C., *see* COSPER, E., 145
- STILWELL, D., *see* DAME, R. F., 721
- STOFFYN, M., Vertical distribution of trace elements in the surface waters offshore Nova Scotia, 433
- Sublittoral zones; benthos; depth zones; Bay of Fundy, Canada, 571
- Sublittoral zones; Scotland coast; macrofauna; kelp; detritivores, 97
- Sulfates; anoxic conditions; anions; inhibitors, 361
- Surf zone; abundance; seasonal variations; fish; community, 459
- Surf zone; Gulf of Mexico; Mississippi coast; fish larvae; distribution, 191
- Surf-zone; variation; abundance; diversity; South Africa coast; fisheries; community, 347
- Surface layers; redox; Delaware coast; trace elements; *Spartina*; salt marshes; biogeochemistry, 331
- Survival; New York Bight; Amphipoda; life cycle; reproduction; fecundity; recruitment, 639
- Suspended matter; tidal estuaries; models; water movements; Denmark coast; sediment transport, 527
- Suspended sediments; Long Island; dredging; nutrients; trace elements; geochemistry; mixing; estuarine sedimentation, 385
- TAKAYANAGI, K. and WONG, G. T. F., Total selenium and selenium (IV) in the James River Estuary and southern Chesapeake Bay, 113
- Teleosts; South Africa; estuarine fauna; food sources; aquatic plants, 315
- Temporal variations; continental shelves; seaweeds; Invertebrata; turbulence; North Carolina; marine ecology; spatial distribution, 133
- Temporal variations; tides; nearshore zone; production; St Lawrence Estuary; ichthyoplankton, 177
- Texas; Gulf of Mexico; benthic fauna; benthic nutrients; sediments; coastal currents, 221
- Texas; settlement; recruitment; population dynamics, mollusca, 367
- TERRIAULT, J. C., DE LADURANTAYE, R. and INGRAM, R. G., Particulate matter exchange across a fjord sill, 51
- THOMAS, M. L. H., *see* LOGAN, A., 571
- THOMMERET, Y., *see* BERNAT, M., 557
- THOMSON, R. E., *see* WOLANSKI, E., 271
- Tidal estuaries; models; water movements; Denmark coast; sediment transport; suspended matter, 527
- Tides; nearshore zone; production; St Lawrence Estuary; ichthyoplankton; temporal variations, 177
- Tides; wakes; Great Barrier Reef; Coral sea; wind stress; friction coefficients; continental shelves, 271
- Trace elements; geochemistry; mixing; estuarine sedimentation; suspended sediments; Long Island; dredging; nutrients, 385
- Trace elements; *Spartina*; salt marshes; biogeochemistry; surface layers; redox; Delaware coast, 331

- Trace elements; vertical distributions; water column; Atlantic ocean northwest; Nova Scotia; continental shelf, 433
- TRAMONTANO, J. M., Jr and BOHLEN, W. F., The nutrient and trace metal geochemistry of a dredge plume, 385
- TSUBOTA, H., *see* MATSUNAGA, K., 615
- Tunicates; biogeochemistry; fecal pellets; sinking; americium; Mediterranean Sea, 13
- Turbulence; North Carolina; marine ecology; spatial distribution; temporal variations; continental shelves; seaweeds; Invertebrata, 133
- TURNER, D. R., *see* KNOX, S., 623
- Upwelling; phytoplankton; spatial distribution; circulation; flushing; Concepción Bay, Chile; bays, 25
- VALENTI, C. C., *see* EPIFANIO, C. E., 1
- Variation; abundance; diversity; South Africa coast; fisheries; community; surf-zone, 347
- Vertical distributions; water column; Atlantic Ocean northwest; Nova Scotia; continental shelf; trace elements, 433
- Virginia coast; metals; radioactive tracers; radioactive dating; estuarine sedimentation, 37
- VOLTOLINA, D., *see* SAVIDGE, G., 157
- Wakes; Great Barrier Reef; Coral Sea; wind stress; friction coefficients; continental shelves; tides, 271
- Wakes, Great Barrier Reef; Papua; Coral Sea; river plumes; mixing processes, 291
- WARD, T. J. and YOUNG, P. C., Effects of metals and sediment particle size on the species composition of the epifauna of *Pinna bicolor* near a lead smelter, Spencer Gulf, South Australia, 79
- Washington coast; hydrocarbons; organic matter; sediment cores; distributions, 703
- Water; sediments; sediment traps; Prince Edward Island coast; particulate matter; organic matter; pigments, 511
- Water analysis (chemical); lagoons; sediments; Bermuda islands; metals, 245
- Water column; Atlantic ocean northwest; Nova Scotia; continental shelf; trace elements; vertical distributions, 433
- Water movements; Denmark coast; sediment transport; suspended matter; tidal estuaries; models, 527
- WHITFIELD, A. K., The effects of prolonged aquatic macrophyte senescence on the biology of the dominant fish species in a southern African coastal lake, 315
- WHITFIELD, M., *see* KNOX, S., 623
- WILSON, W. H., Jr, An experimental analysis of spatial competition in a dense infaunal community: the importance of relative effects, 673
- WILSON, R. E., *see* ARCOS, D. F., 25
- Wind stress; friction coefficients; continental shelves; tides; wakes; Great Barrier Reef; Coral Sea, 271
- WOLANSKI, E. and THOMSON, R. E., Wind-driven circulation on the northern Great Barrier Reef continental shelf in summer, 271
- WOLANSKI, E., PICKARD, G. L. and JUPP, D. L. B., River plumes, coral reefs and mixing in the Gulf of Papua and the northern Great Barrier Reef, 291
- WONG, G. T. F. and MOY, C. S., Cesium-137, metals and organic carbon in the sediments of the James River Estuary, Virginia, 37
- WONG, G. T. F., *see* TAKAYANAGI, K., 113
- WOODHEAD, P. M. J., *see* MORGAN, M. A., 639
- YOUAKIM, S., and REISWIG, H. M., The distribution and flux of particulate matter in the Bideford River Estuary, Prince Edward Island, Canada, 511
- YOUNG, P. C., *see* WARD, T. J., 79
- Zinc; marine; bryozoa; sponge fisheries; mollusca; Australia coast; cadmium; copper; lead, 79
- Zooplankton; grazing; continental margins; New York Bight; primary productivity, 145